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NOTES ON TWO SPECIES OF FERN GENUS *PRONEPHRIUM* PRESL

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ABSTRACT

The occurrence of *Pronephrium asperum* (Presl) Holtt. in India has been confirmed. *P. simplex* (Hook.) Holtt. has been reported as new to India. Both the species have been described in detail with illustrations to facilitate easy identification.

In the course of identification of herbarium specimens belonging to the family *Thelypteridaceae sensu lato* collected from Arunachal Pradesh in the year 1982, the authors came across a few peculiar specimens of the genus *Pronephrium* Presl, which on critical studies of the protologue, type photographs and other relevant literature turned out to be *Pronephrium asperum* (Presl) Holtt. and *P. simplex* (Hook.) Holtt. Holttum (1972) in revisionary studies of the genus *Pronephrium* Presl recorded the distribution of *P. asperum* (Presl) Holtt. from Malesia and N. Queensland only, while Ching (1938) reported its occurrence in addition to China from "also India generally, Sri Lanka, Siam, Burma, Cochin-China, Farmosa, the Phillippine Islands, Malesia, Polynesia and N. Australia and referred number of synonyms from Beddome's 1864, 1866, 1883; Clarke 1880, and Hope (1903) works under different names and usually with mixed descriptions. However, its occurrence in India has been confirmed. *P. simplex* (Hook.) Holtt. earlier known from South China and Tonkin is reported here as new to India. Both the species are described in detail with illustrations etc. to facilitate easy identification.

Pronephrium asperum (Presl) Holtt., Blumea 20(1) : 112. 1972. *Goniopteris aspera* Presl, Tent. Pterid. 183. 1836. *Polypodium asperum* Presl, Rel. Haenk. 1 : 24. t. 3. f. 4. 1825, *non* L. 1753. (*nom. illeg.*). *Nephrodium glandulosum* J. Sm. in Seemann, Bot. Voy, Herald 428. 1857; Bedd., Ferns Brit. India t. 132. 1866 (*non* Presl, 1851). *Polypodium urophyllum* Hook., Sp. Fil. 5 : 9. 1863; Clarke, Trans. Linn. Soc. Lond. II. Bot. 1 : 547. 1880; Hope, Journ. Bomb. Nat. Hist. Soc. 14 : 81. 1903 (*pro parte*); *Goniopteris urophylla* Bedd., Ferns South. India : 79, t. 239. 1864. (*non* Presl, 1836). *Nephrodium urophyllum* Bedd., Handb. Ferns Brit. India 274. 1883 (*pro parte*). *Nephrodium lineatum* Bedd., Ferns Brit. India t. 133. 1866. (*non* Presl, 1851). *Abacopteris presliana* (Ching) Ching, Bull. Fan Mem. Inst. Biol. Bot. Ser. 8 : 248. 1938. *Dryopteris presliana* Ching in C. Chr. Ind. Fil. Suppl. III. 95. 1934. *Abacopteris multilineata* var. *malayensis* Holtt. Rev. Fl. Malaya 2 : 297. f. 173. 1954. *Abacopteris aspera* (Presl) Ching, Acta Phytotax. Sin. 8 : 322. 1963.

Rhizome long, creeping. Fronds 1-1.5 m, erect, imparipinnate, drying reddish-green, apical pinna like lateral pinnae. Stipes 50-75 cm, stramineous to dark brown, terete on

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the lower surface, grooved above, scaly at basal portions ; scales oblong, subtriangular, pale-brown, hairy at the margins ; lamina oblong-lanceolate, 50-75 × 40-50 cm in the middle part ; rachis hairy on the lower surface and with a few small, dark, brown, thin-walled scales with marginal hairs ; lateral pinnae 4-8 pairs, shortly stalked to sessile in the apical part, oblong-lanceolate, 20-30 × 4.5-6 cm, falcate, round to subtruncate at base but apical ones with cuneate base, long acuminate at apex, acumen 2.5-3 cm, wavy to shallowly crenate in the margins, papyraceous in texture, verrucose, hairy on costa and costules on the lower surface, upper surface glabrous except a few hairs present in the marginal part of pinnae ; hairs unicellular, setose ; venation goniopterioid, 12-22 pairs of conjugated veinlets, curved, excurrent veinlets free. Sori indusiate, round, on conjugation veinlets, confluent at maturity ; sporangia usually with two setae ; indusium reniform, persistent but immersed when matured, setiferous ; spores dark brown, monolete, 35-50 μm in diam ; winged (Figs. 1 A-J).

Specimens examined : ARUNACHAL PRADESH-Lower Subansiri-New Itanagar : Stream side, 23 May, 1982, *Dixit* 32160, 32163 ; Hydel Project Area, 24 May, 1982, *Dixit* 32272 (BSA).

The present species can be easily distinguished from *Pronephrium nudatum* (Roxb. ex Griff.) Holtt. by its number of pinnae not more than 8 pairs, margins wavy to shallowly crenate and spores winged against pinnae usually more than 8 pairs, margins sharply crenate-serrate and spores spinulose in *P. nudatum*.

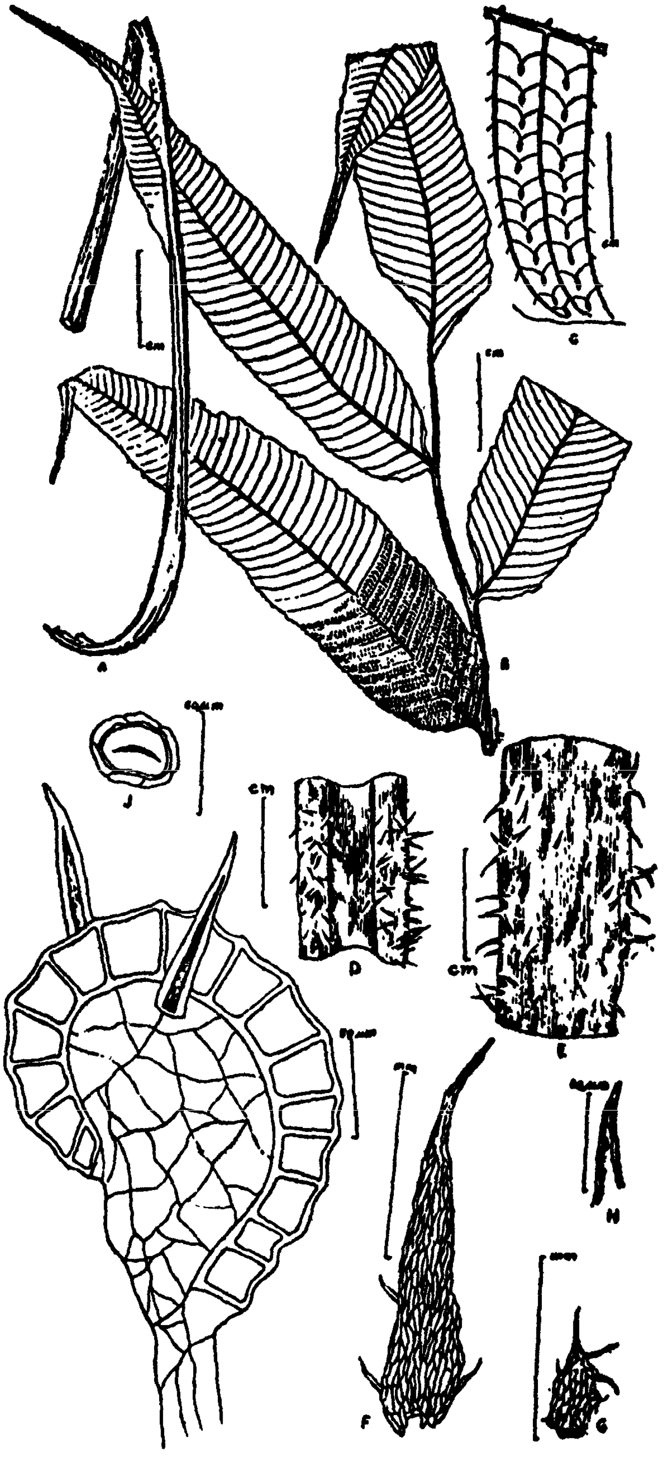

Fig. 1. A-J. *Pronephrium asperum* (Presl) Holtt. A. Part of stipe. B. Apical part of lamina. C. Venation. D. Part of stipe showing dorsal surface. E. Part of stipe showing ventral surface. F. Scale from rhizome. G. Scale from stipe. H. Setose hair. I. Sporangium showing setae. J. Proximal part of spore.

Pronephrium simplex (Hook.) Holtt., Blumea 20(1) : 122. 1972. *Meniscium simplex* Hook., Lond. Journ. Bot. 1 : 294. t. 11. 1842 et Sp. Fil. 4 : 162. 1864.

Rhizome long, creeping, clothed with a few dark-brown scales with ciliate margins, 2-4 × 1.5-2.5 mm. Fronds simple (rarely with a pair of free pinnae) ; drying green, subdimorphous ; stipes 20-30 cm, clothed with a

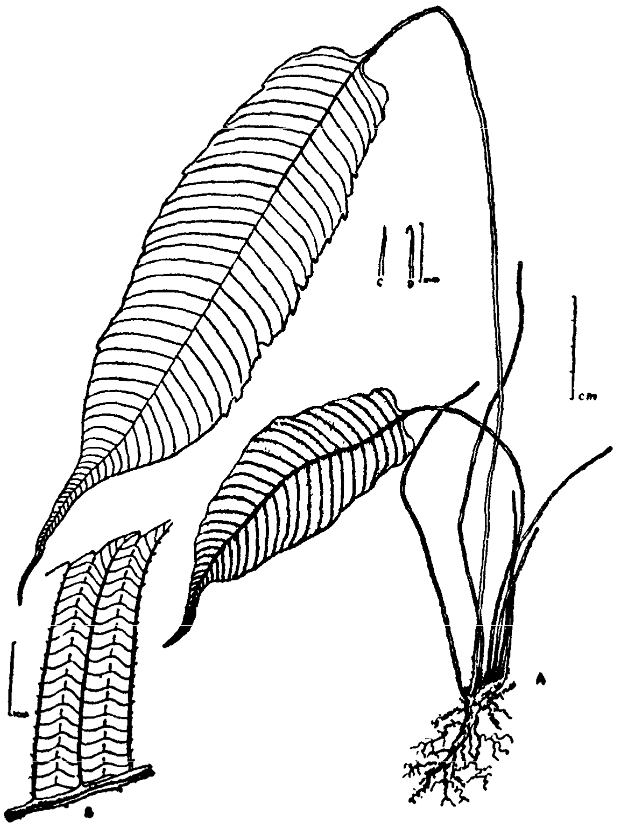

Fig. 2. A-D. *Pronephrium simplex* (Hook.) Holtt. A. Habit. B. Venation. C. Straight hair. D. Hooked hair.

few scales and hairs at the base. The sterile leaf larger, oblong, 13-21 × 4.5-6.5 cm, deeply cordate (rarely hastate) at base, acuminate at apex, margins irregularly dentate, subcoriaceous in texture; upper surface glabrous, lower surface densely pubescent, hairs unicellular, transluscent, simple or hooked on the lower surface, veins pilose, goniopteroid anastomosing 8-18 pairs of conjugated veinlets, curved, excurrent veinlets free; fertile fronds smaller on the longer stipes (Figs. 2 A-D).

Specimens examined: Arunachal Pradesh, New Itanagar: Seinkhi view, 21 May 1982, *Dixit* 32110 (Four specimens, BSA).

The present species can be easily distin guished from the other species by its fronds mostly simple, distinctly cordate to hastate at base and with pilose lower surface.

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